

*The Phonetic
Assimilation
in
the Qur'an*

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Abstract:

This paper investigates the phonetic assimilation in the Qur'anic verses. Assimilation as a universal phenomenon is defined by many phoneticians as Shane, Roach, Langacker and many others as a phonological process where there is a change of one sound into another because of the neighbouring sounds. Roach defines two kinds of assimilation: regressive and progressive. Phonologically, assimilation is found to have its own peculiarities, thus this process has its own conditions and terms when applicable to the Qur'anic verses. Adopting Roach 's classifications, three kinds of assimilation are dealt with in this paper: *Iqlab*, *Idgham* and *Ikhfaa*. Each of these processes is found to have its own environment of occurrence and conditions of articulations. *Idgham* ,for example, occurs between two words under specific conditions. *Ikhfaa* and *Iqlab* occur either within a word or across word boundaries. But the common feature of the three processes is the presence of the alveolar nasal /n/ of the 'silent n' or "attanween". Regressive assimilation is found to be more applicable than progressive one.

Introduction:

Qur'an is the sacred book revealed to Prophet Muhammad peace be upon him for more than fourteen centuries ago. It is considered the first source of the Islamic Shari'ah (law) and the basic reference for Standard Arabic. It is the only Holy book preserved from any change throughout ages as God promised and stated in Al Hajer Sura: " *إنا نحن نزلنا الذكر وإنا له لحافظون* " which is translated by Ali (1934) as such " *We have, without doubt, sent down the message; and We will assuredly guard it (from corruption)* " (638). For such a great importance, Muslims are ordered to "recite the verses of Qur'an in slow, measured rhythmic tones" (Ali p. 1633) as God bides " *ورتل القرآن ترتيلا* ". However, whoever wants to practice the recitation of its verses the way they were revealed to Prophet Muhammad should have a considerable knowledge of some basic and conventional phonological rules peculiar to the Arabic language and to the Qur'an.

Arabic is a highly inflected language. Inflections have an essential phonological role in the language in general and in the recitation of the Qur'anic verses in particular which, in turn, has grammatical and semantic effect.

In relation to what is mentioned above and in order to help non-native Arabic Muslim readers of Qur'an, the researcher aims here to describe some of the Qur'anic phonological rules particularly those that govern the articulation of the final silent [n°] in "Annoon assakina", and the inflectional "tanween" both of which are equivalent to the English alveolar nasal /n/. Assimilation is one of these basic rules. This paper will deal with three kinds of Qur'anic assimilation known as *Iqlab*, *Idgham*, and *Ikhfaa*.

Assimilation:

It is defined by many phoneticians as Shane (1973), Ladefoged (1975), Roach (1987), Langacker (1973) and many others as a phonological process where there is a change of one sound into another because of the neighbouring sounds. It is "a process in which a segment takes on features from a neighbouring one. A consonant may pick up features from a vowel, a vowel may take on features from a consonant, one consonant may influence another, or one vowel may have an effect on another" (Shane, p.49). This definition is asserted by Fromkin (1988) when she says that "assimilation is a kind of ease of articulation process in which one sound influences the pronunciation of another adjacent or

nearby sound" (p. 481). Thus, according to Fromkin, assimilation processes are universal since "they permit greater ease of articulation" (p. 284). Ladefoged (1975) says that "anticipatory co-articulation is by far the commonest cause of assimilations in English." (p. 92). Anticipatory co-articulation means that a preceding sound takes the feature of the following one as /input/ → [imput]

/does she/ → [dʌʃi]

On the light of this, assimilation in English is classified differently. Roach (1987), for instance, defines two kinds of assimilation: regressive and progressive. Regressive assimilation occurs when the final consonant changes to become like the initial consonant of the second word, for example:

'sit down' → [sidaun]

'that person' → [ðæpərsən]

'good girl' → [gugərl]

But progressive assimilation happens when the final consonant becomes like the preceding consonant in some way as in voicing, for example,

'cats' → [kæts]

'dogs' → [dogz]

Assimilation in English is also categorized by place, voice and manner:

by place as: smile, snow

by voice as: caps [kæps], cars [kɑːz]
liked [laɪkt], opened [opənd]

by manner as: lemon (light /l/)
well (dark /l/)

Regarding the Arabic language, it is found that some assimilation processes similar to the English ones or with some modification occur frequently while reading the qur'anic verses. There are three main ones known in "Attajweed science" (the phonology of the Qur'an) as 'Iqlab', 'Idgham', and 'Ikhfaa'. The three will be our concern in this paper. Our analysis will be based on Roach (1987) and Ladefoged 1975 definitions and classifications.

Annoon Assakina (the silent [n[◌]]:

It is the alveolar nasal /n/ consonant whose sound undergoes certain phonological changes when it occurs as a silent letter in the final position of the last syllable of a word whether a noun, verb or preposition. It is unexpected or unreleased by any inflection: "fath[◌]a" / [◌] /, "kasra" / [◌] /, or "D[◌]ama" / [◌] / i.e. any of these short vowels /a/, /i/, /u/. In this case the tip of the tongue stays in its articulatory position i.e. the alveolar ridge, keeping the lips in a neutral position for sometime longer than the required to inflect the consonant with the short vowel /a/ or the fath[◌]a / [◌] / where the lips are fairly open, /i/ or the kasra / [◌] / where the lips are wide flat or with /u/ or the D[◌]ama / [◌] / where the lips are tightly rounded. The silence or the unreleased closure through the oral tract of this sound is indicated by the use of an upper small circular diacritic ([◌]) at the end of the syllable such as:

[**man[◌]**] = 'who' in English

[**an[◌]**] = 'about' in English

Tanween or Nunation:

It is additional inflectional sounds added to the last syllable of words especially nouns to indicate their grammatical cases. Acoustically, these case endings are described as an additional unexploded alveolar nasal /n/ which accompanies the articulation of the final syllable of a noun (Nasir,1997). "Tanween" has three different notational but not consonantal forms depending on the grammatical case it shows. Each of these markings consists of one of the short vowels : /a/, /u/, /i/ plus the final silent /n/. The result is three different phonetic realizations as shown as follows:

The Phonetic Realization

<i>The Arabic Notations of Tanween</i>	<i>The Articulation o f these Notations</i>	<i>Examples in Arabic</i>	<i>Phonetic Transcription</i>
([◌])	-an	عزيراً	[^ʔ azi:zan]
([◌])	-un	عزيراً	[^ʔ azi:zun]
([◌])	-in	عزيراً	[^ʔ azi:zin]

Iqlab (Assimilation I):

Arab phonetician as Aljamal (2000) and Nasir (1997) state that 'Iqlab' means that three nasal sounds of 'attanween'; /æ/, /un/, or /in/, in addition to what is described as silent /n̥/ will be changed to the nasal semi-bilabial /m̥/ whenever they are followed by the bilabial stop /b/ in a word-initial position (in two words) or in one word. This happens as a result of the anticipatory co-articulation of /b/ since we the preceding one. The new semi-bilabial nasal /m̥/ gives a kind of trilling or quavering prolongation i.e. long vibrating sound as shown in the following table. (See the full list of Arabic alphabets in the appendix).

Transcription of the written text		Transcription of articulation	
<i>Arabic</i>	<i>English</i>	<i>Arabic</i>	<i>English</i>
مشاء بنميم	Maša:ʔin binami:m	مشاءم̥ بنميم	Maša:ʔim̥ binami:m
أَنْ بورك	? aʔnbu:rika	أَمْ بورك	?am̥ bu:rika
سميع بصير	Sami:ʔun bas̥i:r	سميعم̥ بصير	Sami:ʔum̥ bas̥i:r

Here we have a change in the place of articulation; instead of the alveolar ridge position of /n/, it becomes nearly bilabial. There is also a change of manner; the lips are not tightly closed to produce the nasal /m/, nor neutral for the nasal /m/, nor neutral for the nasal /n/ but it takes a mid-position that could be defined as semi-bilabial /m̥/ allowing some air to pass through the nasal cavity and some through the oral tract since there is no complete closure. The new /m̥/ is not produced clearly because another rule known as 'ikhfaa' which will be discussed later, will apply here.

To sum up, this rule could be stated as follows:

+nasal +alveolar +final syllable	<i>when followed by the bilabial stop</i> →	+nasal +semi-bilabial
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Idgham (Assimilation II):

'Idgham' in Arabic means the deletion of the alveolar nasal sound of the silent /ṇ/ or 'tanween' whenever it occurs in final position and is followed by one of these six following sounds: /m/, /n/, /y/, /w/, /r/, and /l/. As a result, these sounds will be geminated. In writing, gemination is represented by doubling the geminated letter. But it is worth noting that no assimilation will take place if these sounds occur within a word.

Properties of the six voiced-sounds of 'idgham' as described by some Arabic phoneticians as Al Kholi (1982):

- /y/ ي : an alveo-palatal glide
- /n/ ن : an alveolar nasal stop
- /m/ م : a bilabial nasal stop
- /w/ و : a bilabial glide
- /l/ ل : an alveolar lateral or liquid
- /r/ ر : an alveolar trilling glide or liquid

The sounds /r/, /y/,/w/ are described as glides because they are "signalized by a moving not a stationary tongue position" (Stageberg, 1981,p. 26), whereas some phoneticians as Ladefoged (1975) classifies these three sounds as approximants. That is because there is "an approach of one articulator towards another, but without the tract being narrowed to such an extent that a turbulent airstreams produced" (p. 10). In some other cases, /l/, and /r/ are defined as liquids; a term which will be adopted here in this paper.

'Idgham' is classified differently by Arab scientists and phoneticians depending on the way and the degree of assimilation. Considering how it takes place, two types of assimilation are recognized: with nasalization and without nasalization. The degree of assimilation, on the other hand, shows two other classifications: complete and incomplete assimilations. Here are the four types of 'idgham'.

A. Idgham (Assimilation II) with nasalization

This kind of assimilation takes place when any one of the following four sounds comes initially in a word which is preceded by a final consonantal alveolar nasal /n/ as in the silent/ṇ/ or non-consonantal as in 'attanween'. These sounds are the bilabial and the alveolar nasals /m/ and /n/ and the bilabial and palatal glides /w/ and /y/. Under these conditions, the two neighbouring sounds found in two separate words should be assimilated into the second sound which in turn will be geminated. The two glides will be nasalized too. The degree of germination in the /m/ and /n/ will be stronger than in the /y/ and /w/. Nasalization stays as an indicator of the disappeared /n/. This diacritic (

□) will be used to represent nasalization. Regressive but not progressive assimilation happens here since there is a complete absorption of the final sound into the initial one.

Qur'anic Examples of Idgham with nasalization

<i>Qur'anic Verses</i>	<i>English Transcription of the written verses</i>	<i>Arabic Transcription of articulation</i>	<i>English Transcription of articulation</i>
مِنْ نِعْمَةٍ	min [◌] ni ^ʕ matin	مَنْعَةً	min [◌] ni ^ʕ matin
مَنْ يَعْمَلْ	man [◌] ya ^ʕ mal	مَيَّعِلْ	may [◌] y [◌] a ^ʕ mal
مِنْ وَالٍ	min [◌] wal	مَوَالٍ	miw [◌] w [◌] al
صِرَاطٍ مُسْتَقِيمٍ	s [◌] ira:tin [◌] mustaqi:min	صِرَاطٍ مُسْتَقِيمٍ	s [◌] ira:tim [◌] m [◌] ustaqi:min
أُمَّةٍ وَاحِدَةٍ	ummatan wah [◌] ida	أُمَّتٍ وَاحِدَةٍ	ummataw [◌] w [◌] ah [◌] ida
قَبْضًا يُسِيرَا	qabd [◌] an yasi:ra	قَبْضَيَّسِيرَا	qabd [◌] ay [◌] y [◌] asi:ra

The above rule will have the following form:

+ nasal		- articulation of the final sound of the preceding word
+ alveolar	<i>followed by a bilabial or alveolar nasals or bilabial or palatal glides</i> →	+ nasalization of the initial following sound
+ final position		+ germination of the initial following sound

B. Idgham (Assimilation II) without nasalization:

This process occurs when the final alveolar nasal /n/ is followed by the alveolar lateral /l/ or the trilling liquid /r/ as an initial sound in another word. In such a case, /n/ will disappear completely and no nasalization will take place, but /l/ and /r/ will be geminated. Here, too, there is regressive not progressive assimilation with complete merge of the final sound into the intial one. No traits of the deleted sound remains.

Gemination is represented by the doubling of the geminated letter in the English transcription and by the use of this symbol (ّ) above the letter in the Arabic language. Consider the following examples:

Qur'anic Examples of Idgham without nasalization

<i>Qur'anic Verses</i>	<i>English Transcription of the Written Verses</i>	<i>Arabic Transcription of Articulation</i>	<i>English Transcription of Articulation</i>
مِنْ رَبِّكَ	min [◌] rabika	مِرْبَبْكَ	Mirrabika
أَنْ لَوْ	?an [◌] lau	أَلَّوْ	?allau
وَيَلِّ لِكُلِّ	Waylun [◌] likuli	وَيَلَّلِكُلِّ	Waylullikuli
غَفُورًا رَحِيمًا	v [◌] afu:ran [◌] rah [◌] i:na	غَفُورَرَحِيمًا	v [◌] afu:rarrah [◌] i:ma

The above rule could be stated as follows:

+ liquid	$\xrightarrow{\text{preceded by a final /n/}}$	+ gemination
+ initial position		- nasalization
		- the final /n/

However, some Arab phoneticians and researchers classify the process of assimilation known as 'idgham' into two different types: complete and incomplete depending on the degree of assimilation.

C. Complete Idgham (Assimilation II):

Generally, it is the insertion of one silent sound i.e. not inflected, into an inflected one so that the silent sound disappears completely and nothing stays of its previous qualities, however the second sound which is inflected will be geminated. Regarding the Qur'anic verses, this applies to the /l/ and /r/ which are geminated when they come initially after final alveolar nasal /n/. Here, neither nasalization nor any other traits of /n/ appear. This also applies on /m/ and /n/ when they occur initially after the final nasal /n/ across word boundaries. Gemination of the /m/ and /n/ sounds will be the result. Nasalization, too, will be very obvious. However, this nasalization is not a trait acquired of the deleted /n/ but of the initial /m/ and /n/. Look at the following examples of this type.

Qur'anic Examples of Complete Idgham

<i>Qur'anic Verses</i>	<i>English Transcription of written verses</i>	<i>Arabic Transcription of Articulation</i>	<i>English Transcription of Articulation</i>
مِنْ لَدُنْهِ	min ^o ladunh	مِلْدُنْهِ	milladunh
مِنْ رَّبِّهِمْ	min ^o rbihim	مِرْرَبِّهِمْ	mirrabihim
كَأْسٍ مِنْ مَعِينٍ	Kaʔsin min ^o maʕi:n	كَأْسِمَعِينٍ	Kaʔsim ^o m ^o im ^o m ^o aʕi:n
مِنْ نَصِيرٍ	min ^o nas ^o i:r	مِنْصِيرٍ	min ^o n ^o as ^o irin
مَالًا لِبَدَا	ma:lan ^o lubada	مَالِلْبَدَا	malallubada
فِي عِشَّةٍ رَاضِيَةٍ	fi: ʔ:ʃatin ^o rad ^o iah	فِي عِشْتَرَّاضِيَةٍ	fi:ʔ:ʃatirrad ^o iah
مِنْ مَاءٍ مَهِينٍ	min ^o ma:ʔin ^o mahi:n	مِمَائِمَّهِينٍ	mim ^o m ^o a:ʔim ^o m ^o ahi:n
صَابِرًا نَعْمَ الْعَبْدُ	s ^o abiran ^o niʕma al ʔabdu	صَابِرْنَعْمَ الْعَبْدُ	s ^o abiran ^o n ^o iʕma alʔabdu

C. Incomplete Idgham (Assimilation II):

It is the merging of two neighbouring sounds (in two separate words) which results in the deletion of the first sound and the preservation of the second one keeping nasalization as a marker of the deleted sound (Al Jama, 2000).

In the recitation of the verses of Qur'an, this process is clear whenever the /w/ and /y/ occur initially after the final alveolar nasal /n/. Consider the following examples:

Qur'anic Examples of Incomplete Idgham

<i>Qur'anic Verses</i>	<i>English Transcription of written verses</i>	<i>Arabic Transcription of Articulation</i>	<i>English Transcription of Articulation</i>
وَمَنْ يُؤْمِنْ	wa man ^o yuʕmin	وَمَيُّؤْمِنْ	wa may ^o y ^o uʕmin

مِنْ وراء	min ^o wara:ʔ	موراء	miw□□□w□ara:ʔ
خيراً يره	xayran ^o yarah	خيريره	xayray□y□arah
مالٍ و بنين	malin ^o wa bani:n	مالو بنين	maliw□w□a bani:n

Ikhfaa (Assimilation III):

In the science of the phonology of Qur'an, 'Attajweed", there are 15 sounds known as the 'faint consonants' because they are treated differently when preceded by the alveolar nasal /n/. These consonants include all Arabic stops except /b/ and /ʔ/, the fricatives, affricate and the emphatics.

The stops: /t/ = /ت/

/d/ = /د/

/k/ = /ك/

The fricatives: /s/ = /س/

/z/ = /ز/

/f/ = /ف/

/θ/ = /ث/

/ð/ = /ذ/

/š/ = /ش/

The affricate: /j/ = /ج/

The emphatics: /s^o/ = /ص/

/d^o/ = /ض/

/t^o/ = /ط/

/ð^o/ = /ظ/

/q/ = /ق/

The Process of Ikhfaa:

Whenever the alveolar nasal /n/ of the 'silent n' or 'attanween' is followed by one of the above mentioned 15 sounds, a process of assimilation will take place. In such a case the /n/ will change its place of articulation, but retain its quality of nasalization. To state it differently, the tip of the tongue will not touch the upper alveolar ridge but it will move nearer to the place of articulation of the following sound. Then it will stay in a neutral position opposite to the place for sometime enough to produce the nasalization which gives the hearer an implicit feeling of the /n/ sound. In this case /n/ exists, not deleted, but it is not explicitly pronounced. Immediately, the tongue will rest in the new articulatory position. Partial regressive assimilation occurs here.

'Ikhfaa' occurs either within a word or across word boundaries whenever the silent /n/ (annoon assakina) is followed by one of the above mentioned 15 sounds, whereas it takes place between words not within a word in case of 'attanween'.

Moreover it is worth noting that when the /n/ is followed by one of the emphatic sounds: /t□/, /d□/, /s□/ /ð□/ and /q/ an additional change take place. Here the tip and the front of the tongue will stay in a mid-way position opposite the place of articulation of the next sound; meanwhile the back of the tongue will be raised to touch the upper palate. So the air cannot pass out freely because it strikes with the raised tongue. As a consequence, an emphatic sound is produced.

Consider the following examples both in Arabic and English but with no phonetic transcription because the change here is only realized orally.

**Qr'anic Examples of Ikhfaa (Assimilation III)
In Annoon Assakina**

<i>Ikhfaa Letters</i>		<i>Annoon Assakina within a word</i>		<i>Annoon Assakina between words</i>	
<i>Arabi c</i>	<i>Englis h</i>	<i>Arabic Transcription</i>	<i>English Transcription</i>	<i>Arabic Transcription</i>	<i>English Transcription</i>
ت	t	كنتم	kun□tum	مِنْ تَسْنِيم	min□tasni:m
ث	θ	منثورا	man□□θu:ra	فَمَنْ ثَقُلَتْ	faman□θaqul at
ج	j	فأنجيناه	Fa?an□jaynah u	مَنْ جَاءَ	man□□ja:?
د	d	أندادا	?n□dada	مِنْ دَابَّةٍ	min□□ da:batin
ذ	ð	لتنذر	litun□ðira	مَنْ ذَا	man□□ða
ز	z	أنزل	?n□zala	مَنْ زَكَّاهَا	man□□ zakkaha
س	s	الإنسان	al?insan	مَنْ سَوَّءَ	min□□su:?in
ش	š	انشقت	?n□šaqt	فَمَنْ شَاءَ	faman□□ ša:?a
ص	s□	ينصرون	yans□□uru:n	مِنْ صَلَاحٍ	min□□ s□ils□a:lin
ض	d□	منضود	man□d□u:d□	مِنْ ضَرِيعٍ	min□□ d□ari:ʔ
ط	t□	ينطقون	yan□□tiqu:n	مِنْ طِينٍ	min□□ t□i:nin
ظ	ð□	فلينظر	fayan□ðuri	مَنْ ظَلَمَ	man□□ ðalama
ف	F	ينفع	yan□faʔ	مِنْ فَضْلٍ	min□□fad□li
ق	q	تنقمون	tan□qumu:n	مِنْ قَبْلِ	min□□qabl

ك	k	منكم	min◌kum	مَنْ كَفَرَ	man◌◌ kafara
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Qur'anic Examples of Ikhfaa (Assimilation III) In Attanween

<i>Ikhfaa Letters</i>		<i>Attanween</i>	
<i>Arabic</i>	<i>English</i>	<i>Arabic Transcription</i>	<i>English Transcription</i>
ت	t	جَنَاتٍ تَجْرِي	janna:tin◌◌ tajri:
ث	θ	سَحَابًا ثِقَالًا	sah◌a:ban◌◌ θiqa:la
ج	j	عَيْنٌ جَارِيَةٌ	ʔaynun◌◌ jariya
د	d	قَنَوَانٌ دَانِيَةٌ	qinwa:nun◌◌ danya
ذ	ð	يَوْمٍ ذِي	yawmin◌◌ ði:
ز	z	فَاقِهَةٌ زَوْجَانِ	fakihatīn◌◌ zawja:n
س	s	بِقَلْبٍ سَلِيمٍ	bīqalbin◌◌ sali:m
ش	š	لِنَفْسٍ شَيْنًا	linafsin◌◌ šayʔa
ص	s◌	رِيحًا صَرَصَرَا	ri:h◌an◌◌ s◌ars◌ara
ض	d◌	مَسْجِدًا ضَرَارًا	masjidan◌◌ d◌irara
ط	t◌	سَمَاوَاتٍ طَبَاقًا	sama:wa:tin◌◌ t◌ibaqa
ظ	ð◌	ظَلًّا ظَلِيلًا	ðillan◌◌ ðali:la
ف	f	لَقَوْلٍ فَصْلٍ	laqawlun◌◌ fas◌l
ق	q	عَذَابًا قَرِيبًا	ʔaðaban◌◌ qari:ba

ك	k	رزقِ كريم	rizqinْ kari:ma
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Conclusion

Assimilation is a universal phonological rule found to be systematically applied in the recitation of the suras (chapters) of the Qur'an. Here, it is realized in three forms: '*iqlap*', '*idgham*', and '*ikhfaa*'. Each of these forms has its own environment of occurrence and conditions of articulations in reading the Qur'anic verses as discussed above. *Idgham* shows complete regressive assimilation as defined by Roach (1987). *Ikhfaa* shows partial regressive assimilation whereas *Iqlab* shows anticipatory co-articulation as defined by Ladefoged (1975).

Mastering these rules and a few others is of extreme importance and will hopefully help the non-native readers a lot in reciting Qur'an the way God intended it to be: "ورتل القرآن ترتيلا", and the way our Prophet Muhammad, peace be upon him, and his followers did. Moreover, the application of the rules of 'attajweed' while reciting Qur'an has a great reward from God. Prophet Muhammad said:

"الماهر بالقرآن مع السفرة البررة والذي يقرأ القرآن ويتتعتع فيه وهو عليه شاق له
أجران " (البخاري ومسلم)

This saying (hadeeth) means that any excellent reader of the Qur'an will be with angels (in the Hereafter) whereas the one who reads it with difficulty will be rewarded twice over.

Appendix A

The phonetic transcription of the Arabic alphabets in this study is based on the IPA (1975).

<i>NO.</i>	<i>Arabic Letters</i>	<i>English Transcription</i>	<i>Characteristics of the Arabic Letters</i>
1	ء	/ʔ/	Voiceless glottal stop
2	ب	/b/	Voiced bilabial stop
3	ت	/t/	Voiceless dental stop
4	ث	/θ/	Voiceless interdental fricative
5	ج	/j/	Voiced palatal affricate
6	ح	/h□/	Voiceless laryngeal fricative
7	خ	/x/	Voiceless uvular fricative
8	د	/d/	Voiced alveolar stop
9	ذ	/ð/	Voiced interdental fricative
10	ر	/r/	Voiced alveolar trill
11	ز	/z/	Voiced alveolar fricative
12	س	/s/	Voiceless alveolar fricative

13	ش	/š/	Voiceless palatal fricative
14	ص	/s□/	Voiceless alveolar emphatic stop
15	ض	/d□/	Voiced dental emphatic stop
16	ط	/t□/	Voiceless emphatic stop
17	ظ	/ð□/	Voiced interdental emphatic fricative
18	ع	/ʕ/	Voiced pharyngeal stop
19	غ	/v□/	Voiced uvular stop
20	ف	/f/	Voiceless labio-dental fricative
21	ق	/q/	Voiced uvular stop
22	ك	/k/	Voiced velar stop
23	ل	/l/	Voiced alveolar lateral
24	م	/m/	Voiced bilabial nasal stop
25	ن	/n/	Voiced alveolar nasal stop
26	ه	/h/	Voiceless pharyngeal fricative
27	و	/w/	Voiced bilabial glide
28	ي	/y/	Voiced palatal glide

Appendix B

Vowels in Arabic are represented either by three inflections or by three long sounds as follows:

<i>inflections</i>	فَتْحَة	fathā a	اَ	a	كَتَبَ	kataba
	كَسْرَة	Kasra	اِ	i	مَرَضَ	maridā a
	ضَمَة	dā ama	اُ	u	قَتَلَ	qutila
<i>Long sounds</i>	ألف ممدودة	Long alif	ا	a:	سَابِقَ	sabaqa
	ياء ممدودة	Long ya:	ي	i:	زِيرَ	zi:r
	واو ممدودة	Long waw	و	u:	نُوحَ	nuhā

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